

## **COMMERCIAL AND OFFICE DEVELOPMENT PLAN**

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### INTRODUCTION

The Commercial Development Plan addresses the location and extent of the retail trade, personal service and general office activities which will be developed to serve the eastern Loudoun area. Such land uses include neighborhood community and regional shopping centers (*See Appendix I, page 133 for definitions*), free standing and highway-oriented commercial uses, professional, insurance, banking and real estate offices.

### POLICIES

The adopted Loudoun County Resource Management Plan established several salient objectives and policies concerning commercial development in Loudoun County. This commercial development plan for eastern Loudoun is designed to present alternative means of achieving these policies and to recommend actions which will implement them. The Resource Management Plan's commercial development policies which apply to eastern Loudoun are as follows:

#### Commercial Service Areas:

1. The County will encourage the development of sufficient retail space to serve the existing and projected residential population of the County and the adjoining service areas. (*RMP, p. 210.*)
2. Retail commercial uses serving residential areas should be sized and located in direct proportion to the extent of their service areas. (*RMP, p. 230.*)
3. The existing commercial space in eastern Loudoun will be reinforced by County policy and practice to provide the most economically viable conditions possible. No new commercial space which would reduce the economic viability of the Sterling Park Mall and the Town Center-Sugarland Plaza shopping centers should be rezoned or approved by the County except for small neighborhood centers which will not directly compete with the existing community commercial centers.

#### Land Use:

4. Specific area plans for the RMP-defined Community Development Areas should designate the size and location for a range of employment centers designed to be compatible with nearby housing and institutional uses. The existing commercial and industrial zoning patterns should form the basis for land uses in these areas. However, the clustering of office and industrial uses in planned, campus-like centers is strongly encouraged in lieu of

continuous strip office and industrial development along Route 7 and Route 28. The County shall develop and adopt specific site planning and design standards for employment land uses. (*RMP, p. 230.*)

#### Convenience Services:

5. Convenience and small scale personal service uses may be located within a residential neighborhood, providing that the commercial area is visually and acoustically buffered from the surrounding residences and traffic volumes and accessibility requirements will not conflict with residential vehicular and pedestrian traffic. (*RMP, p. 230.*)

#### Location:

6. Larger commercial areas serving several neighborhoods or communities should be located on primary or secondary roads and be heavily screened from nearby residences. Incremental, convenience, small-scale or strip commercial uses should not be located on Route 7 or Route 28 in order to promote good planning and zoning but in particular to limit traffic congestion. (*RMP, p. 230.*)

### **BACKGROUND**

#### Commercial Development Market Factors

Commercial land uses may be divided into two major types: regional services and local services. Examples of regional uses include a large shopping mall with multiple department stores and specialty shops and the offices of national associations. Local services include such uses as branch banks, supermarkets, and real estate offices.

The economic and land use factors which influence the location and development potential for regional and local commercial services substantially differ. Local commercial and office services develop primarily in response to the requirements of the population in the immediate vicinity. Hence, a neighborhood shopping area which provides food, drug, cleaning and branch banking services requires a support population of 2,500 to 10,000 persons, depending upon the size of the individual stores. The size and number of local service stores which a particular area can support is usually based upon the magnitude of disposable family income which residents of the service areas spend for particular retail goods and services.

In contrast, regional commercial uses locate in a particular area, either due to regional-serving locational factors such as excellent transportation access, or some other factor such as lower tax rate or better availability of water or sewer service vis-a-vis other regional sites. Hence, large regional malls and office complexes tend to locate, following "*market factors*", in the most accessible and easily developed locales in the regional service area.

## **EXISTING CONDITIONS**

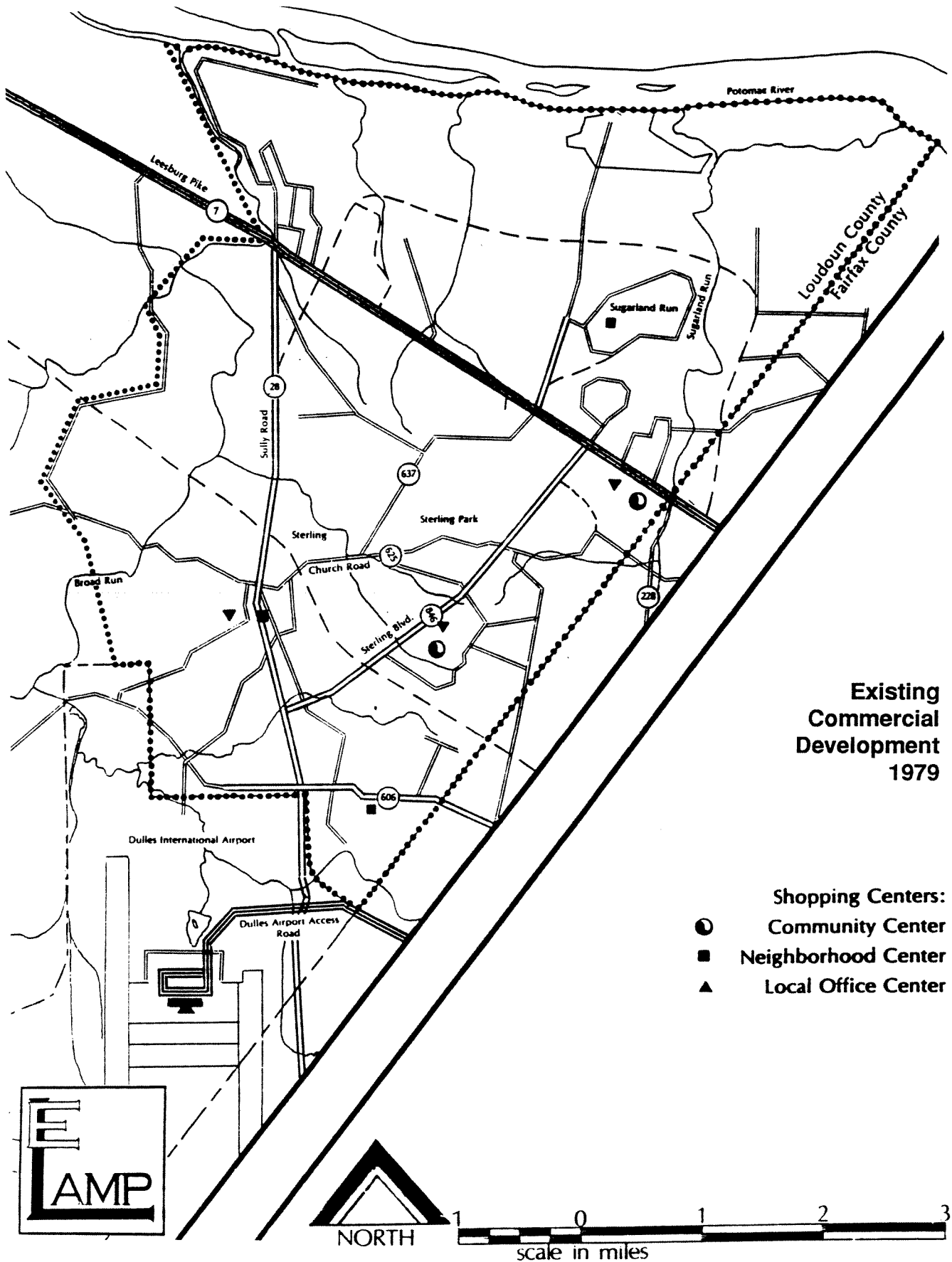
### **A. Current Status of Commercial Development in Eastern Loudoun:**

Approximately 500,000 square feet of commercial and retail space are currently located in eastern Loudoun serving a local population of approximately 25,000 persons as shown in Table 1 and Figure 1, page 117.

| <b>TABLE 1</b>   |                                  |                 |                                     |
|--|----------------------------------|-----------------|-------------------------------------|
| <b>COMMERCIAL DEVELOPMENT IN EASTERN LOUDOUN, 1986</b> |                                  |                 |                                     |
| <b>Location</b>  | <b>Name</b>                      | <b>Size</b>     | <b>Type</b>                         |
| Herndon Junction                                       | Sugarland Plaza                  | 190,000 sq. ft. | Community Center                    |
| Herndon Junction                                       | Town Center                      | 150,000 sq. ft. | Large Neighborhood Center           |
| Herndon Junction                                       | Other Commercial                 | 25,000 sq. ft.  | Strip Highway/<br>Commercial/Office |
|  | <b>TOTAL</b>                     | 375,000 sq. ft. |                                     |
| Sterling Park Center                                   | Sterling Mall                    | 75,000 sq. ft.  | Neighborhood Center                 |
| Sterling Park  | Other Commercial                 | 20,000 sq. ft.  | Neighborhood Center                 |
| Old Sterling   | Commercial                       | 10,000 sq. ft.  | Neighborhood Center                 |
| Sugarland  | Sugarland Square                 | 8,000 sq. ft.   | Neighborhood Center                 |
|  | <b>TOTAL</b>                     | 113,000 sq. ft. |                                     |
| <b>UNDER CONSTRUCTION</b>                              |                                  |                 |                                     |
| Herndon Junction                                       | Village Center on 7              | 51,750 sq. ft.  | (Retail)                            |
| CountrySide  | CountrySide<br>Commercial Center | 129,000 sq. ft. | Community Center                    |
| Near CountrySide                                       | Parc City Centre                 | 52,600 sq. ft.  |                                     |

The shopping centers located at Herndon Junction at the intersection of Routes 7 and 228 are currently functioning as the area's primary retail commercial center and have more than doubled in size in the past several years. This area is also beginning to serve a portion of the western Fairfax population which is located along Route 228 south of Route 7.

Figure 1



The growth of the Herndon Junction center has had the effect of retarding the development of the planned commercial centers in the Sterling Park and Sugarland Run Planned communities. Recent development in the Sterling Park center has been mainly of a local office and specialized retail nature. Little new commercial activity has occurred in the Old Sterling and Sugarland Run areas in the past five years, while the population in surrounding neighborhoods has markedly increased in the same period.

The Eastern Loudoun Area Planning Committee and independent studies have indicated a strong market demand for major general merchandise and large department store services in eastern Loudoun. These services are currently being provided by department stores located in Fairfax County and involve a 20-50 mile round trip. The need for such services is the primary argument from the local perspective for locating a regional shopping facility in eastern Loudoun.

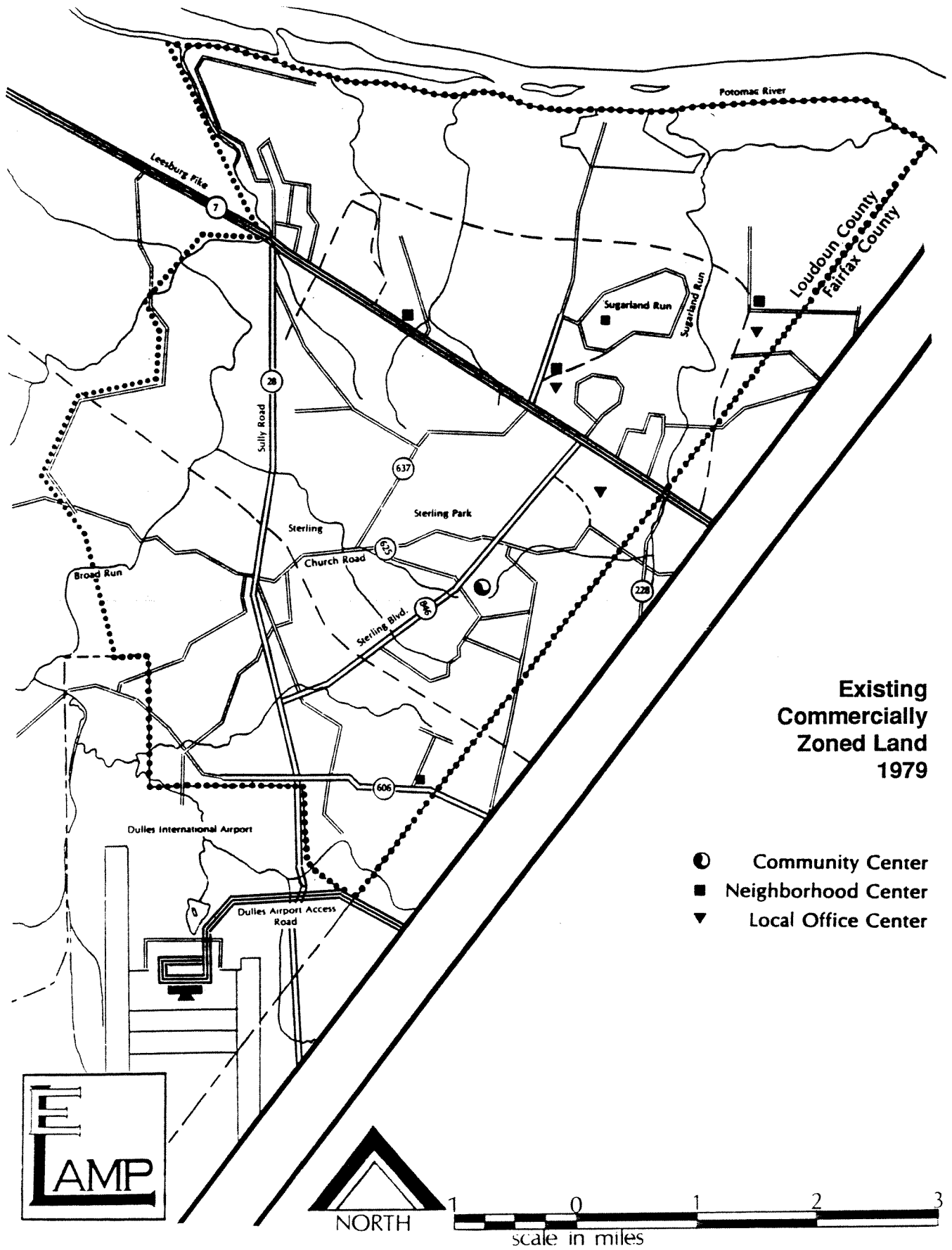
B. Undeveloped Commercial Land

Figure 2 (page 119) indicates the five main locations zoned for commercial use in eastern Loudoun. The largest vacant site south of the Sterling Park Mall was being processed for final site plan approval of 178,000 square feet at the end of 1986. Its development would complete the Sterling Center and bolster the economic viability of the entire area. In addition, approximately 7 acres of commercially zoned land is available in one acre parcels near the Sterling Community Center north of the Sterling Park Mall. Of this 7 acres, 1.6 acres (*Enterprise Shopping Center*) was being processed for preliminary site plan approval of 14,070 square feet at the end of 1986.

The old Sterling area along Church Road at the former W&OD rail right-of-way encompasses 20-30 acres of undeveloped commercially zoned property. The W&OD right-of-way has been purchased by the Northern Virginia Park Authority for the inter-county regional trail and thus a portion of this commercial land might better be developed in more compatible residential uses, e.g., the focus of a village center. However, the 5-10 acres adjacent to Church Road could serve as a neighborhood center for the adjacent residential areas (*Peace Plantation, Fox Lee and Cabin Branch Forest*), as well as old Sterling.

North of Route 7, the two planned communities of CountrySide and Cascades each have 10 acres zoned for commercial use. The CountrySide site has almost been fully developed. In addition, a 10 acre site has been approved at Route 637 south of the entrance to the Sugarland Planned Community in the Mirror Ridge Development. These three commercial areas will each accommodate 50,000-75,000 sq. ft. of retail and office space and will function as neighborhood centers for these planned communities.

Figure 2



### C. Future Commercial Development Requirements

The primary planning issue involving commercial development which the County must address is the extent to which the County will accommodate future regional service needs in addition to the services required by the local population. Assuming a local population growth of 25,000-30,000 persons in approved and pending developments in eastern Loudoun, maintenance of the current level of neighborhood and community scale retail services will require approximately 500,000-600,000 additional square feet of commercial space.<sup>1</sup> As indicated above, zoned land is available or planned to accommodate most of this growth. Any large comparison goods facilities (*large department stores*) would require additional space. In 1982 the County commissioned an economic study which projected a 1990 market area population of over 155,000 for Route 7 retail center locations.

In addition, the property within one to two miles of the Route 28-Dulles Access Road interchange should become more and more valuable for office uses as Dulles Airport expands and the proposed toll road is completed. The County should take advantage of these market forces, as well as the employment potential and objectives outlined in the Resource Management Plan, to plan for the development of a large office complex near Dulles Airport.

During the 1980's, the great majority of new neighborhoods and community commercial services will be required north of Route 7 to support the expected population growth in the several new planned communities. Sterling Park Mall and development of the shopping area in old Sterling will meet most of the future commercial needs of Sterling Park and should be encouraged. New commercial development in Herndon will also provide services to Sterling Park residents. During the late 1980's and 1990's major residential development in the Ashburn area combined with continuing major development north of Route 7 in the eastern part of the County will provide additional demand and trade area balance for an eastern Loudoun regional shopping center site.

## **COMMERCIAL DEVELOPMENT**

### A. Large Regional Shopping Center

Within the context established by current development patterns, transportation plans and taking into account future needs, the development of a large regional mall of 1,000,000+ square feet with additional office space in close proximity would replicate the method of meeting this segment of retail demand as carried out in neighboring counties of Montgomery (*e.g., Lake Forest*) and Fairfax (*e.g., Fair Oaks*).

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<sup>1</sup>

Using standards defined in Appendix II.



A regional center in eastern Loudoun will serve not only eastern Loudoun residents but also the balance of Loudoun County to the west and portions of Fairfax County/Herndon in a trade area extending to the east.

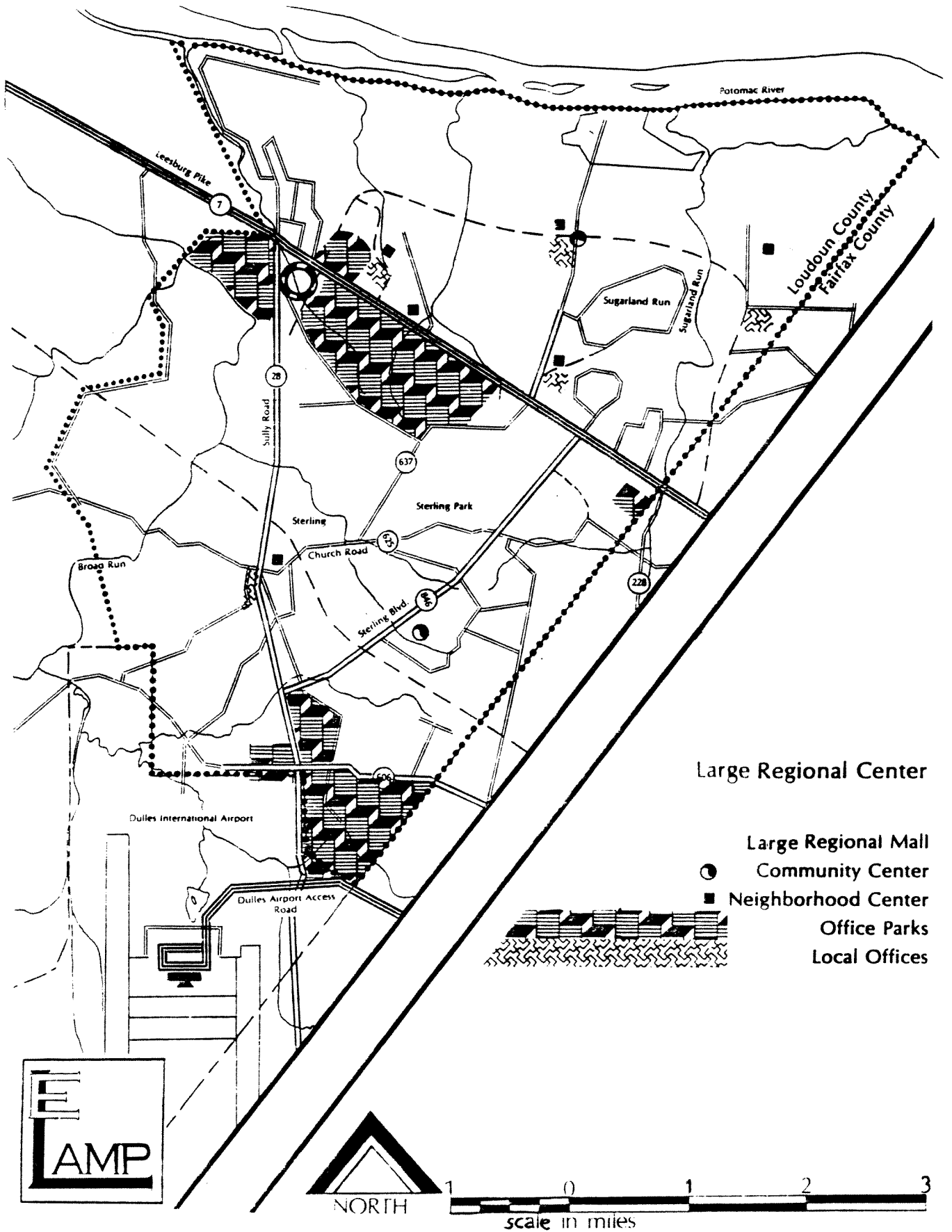
| <b>TABLE 2</b>                          |                      |                     |                                     |
|---|----------------------|---------------------|-------------------------------------|
| <b>REGIONAL CENTER: NEW DEVELOPMENT</b> |                      |                     |                                     |
| <b>Type of Facility</b>                 | <b>No. of Center</b> | <b>Size Sq. Ft.</b> | <b>Service Area</b>                 |
| Neighborhood Centers                    | 5-6                  | 50,000 avg.         | Walking distance to one-mile radius |
| Community Commercial                    | 1-2                  | 100,000+ ea.        | 5-10 minutes                        |
| Large Regional Mall                     | 1                    | 1,000,000+          | 25-30 minutes                       |
| Small Regional Mall                     | 2                    | 600,000-850,000     | 25-30 minutes                       |
| Regional Office                         |                      | 1,000,000+          | SMSA                                |
|   |                      | 2.5-3,000,000       |                                     |

1. Potential Locations:

The regional mall as proposed could be located on 75-120 acres in the southeast quadrant of the Route 28-Route 7 intersection. Community center services could be provided by a 100,000-200,000 square foot addition to the Sterling Mall, and on property near the 637-Route 28 loop intersection. New neighborhood centers would be developed in the four commercially zoned areas, plus additional centers in the Pocahontas (now Cascades) tract. A large regional office center could be developed in the County's "gateway" location near Dulles Airport on land around the Route 606 intersection. The land around the Chantilly Quarry or the quarry site itself could become an extensive regional office complex with access to Dulles Airport and the region via the proposed Dulles Access Toll Road.

Additional regional offices could be developed south of Herndon Junction and adjacent to the Regional Mall along the north and south sides of Route 7. Local service offices similar to the recently developed Holly Plaza in Sterling could be developed adjacent to the CountrySide, Mirror Ridge and Cascades neighborhood centers and adjacent to the community center at 637 and Route 28 loop.

Figure 3



## 2. Impacts:

A regional mall in eastern Loudoun would provide desired commercial services and reduce travel outside of the County to obtain goods. Housing developments with zoning approvals west of Route 28 (*from Leesburg east*) totaled over 10,000 dwelling units in late 1986 in addition to the households existing in this area during 1985. Permitted growth in this area will allow an eastern Loudoun regional center to have a more balanced trade area. When combined with the existing eastern Loudoun households (*10,300 estimated in 1985*) and over 10,000 future residential units in the zoning/development pipeline east of Route 28, the potential for an eastern Loudoun regional center to become more exclusively a "*Loudoun-serving*" facility is apparent. The number of dwelling units and attendant forthcoming population increase represent significant potential trade area growth since the ELAMP was revised in 1983.

### a. Impact on Transportation

Regional centers are typically located in the immediate vicinity of the confluence of region-serving highways (*e.g., Fair Oaks at 50/66, Tysons at 7/495, etc.*). The volumes of traffic generated by the large regional center will be roughly equal at different viable locations unless there are significant differences in opportunities for diversion of traffic already on the road. The primary traffic challenge is to minimize congestion during the p.m. peak hour. Thus, the primary test for minimizing congestion should be the degree to which traffic movement conflicts with major commuter flows can be either avoided or minimized.

The impacts of traffic generated by a regional center are also a function of the geographic distribution of the center's trade area and the availability of capacity in the various elements of the highway system. Capacity will be changing. The County's highway system improvement program has been and will continue to be in flux. The advent of the State's 1986 transportation financing initiative, the program to 4-lane Route 28, Route 7 grade separation policies and planning of the extension of the Dulles Toll Road to the Leesburg area are examples of changes to be considered in evaluating regional center proposals.

### b. Public Facilities and Services Impacts

Regional centers do not have the broad impacts on public facilities and services that are associated with residential development. The impacts of large regional centers are primarily in the public safety areas of fire and police protection. Fiscal impact analyses of regional centers generally demonstrate significant revenue balances to local

governments which become available to meet new facility and service needs. It has also been common practice by the large regional centers to provide on-site security forces as well as advanced fire protection systems responsive to insurance underwriter's requirements.

Similar, but lesser impacts could be expected from large scale office park development. While generating less traffic on a per square foot basis than shopping centers, office parks generate substantial volumes of traffic, e.g., approximately 1 trip per 100 square feet. As office centers' access would use Routes 28 and 7, the rush hour traffic out of the County would conflict to some extent with the traffic going to County employment centers. The construction of four to six lanes and interchanges at key points on Route 28 and Route 7 would be required.

B. Community/Neighborhood Shopping Centers

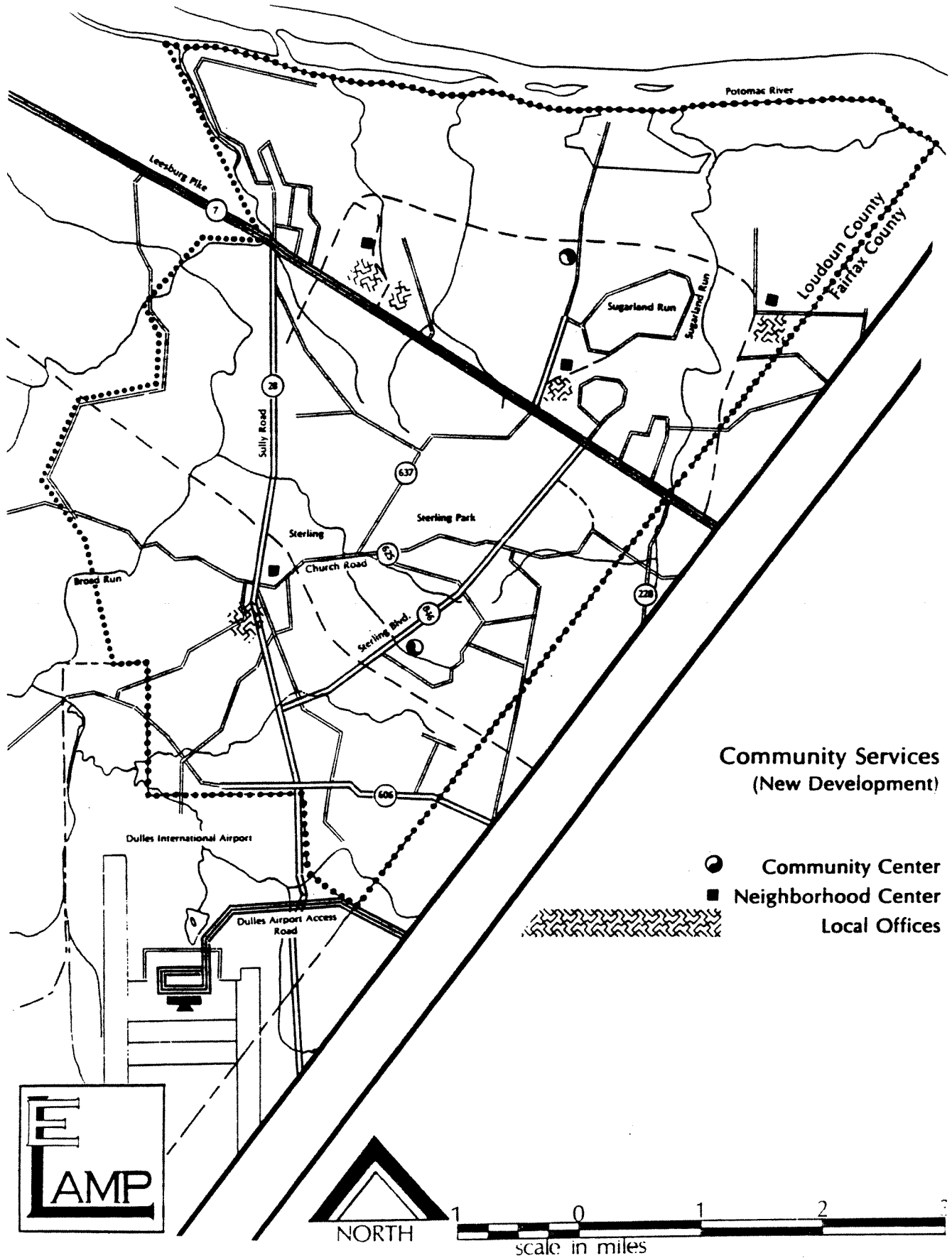
Everyday shopping needs of eastern Loudoun residents are and will be met by a combination of community and neighborhood shopping centers.

| <b>TABLE 3</b>                             |                       |                       |                                  |
|--|-----------------------|-----------------------|----------------------------------|
| <b>COMMUNITY SERVICES: NEW DEVELOPMENT</b> |                       |                       |                                  |
| <b>Type of Facility</b>                    | <b>No. of Centers</b> | <b>Size (Sq. ft.)</b> | <b>Service Area</b>              |
| Neighborhood Center                        | 5-6                   | 50,000 average        | Walking distance - 1 mile radius |
| Community Commercial                       | 1-2                   | 100,000+ (each)       | 5-10 minutes                     |
| Local Office                               |                       | 100,000+ (each)       | Eastern Loudoun                  |
|  |                       | 500-600,000           |                                  |

1. Locations

Neighborhood centers are to be located in currently approved locations in the several planned communities. Existing community center locations at Sterling Park and Herndon Junction are recognized and could be expanded to meet community needs. A new community center location is recommended north of Route 7 on the Algonkian Parkway. The need for additional neighborhood centers may arise with additional planned residential development and employment growth south of Route 7 in the future.

Figure 4



## **COMMERCIAL DEVELOPMENT POLICIES**

Commercial development in eastern Loudoun shall consist of a hierarchy including regional, community and neighborhood shopping facilities. The regional center will also serve areas outside of eastern Loudoun but community and neighborhood centers shall be located and sized primarily to serve eastern Loudoun.

Potentially negative transportation and public service impacts associated with a regional shopping center would be mitigated by implementing the following policies and standards:

1. New commercial retail facilities should be designed to promote the identity of individual communities and reinforce existing commercial facilities within the planning area.

The new regional center should be the retail focal point for eastern Loudoun, Dulles North and Leesburg for regional shopping needs.

2. The market area and population threshold shall be large enough for the various types of commercial facilities to financially support themselves and not depend upon that portion of the service population which is already served by existing services and facilities.
3. All new commercial development should be located in planned commercial zoning districts (*PD-SC* and *PH-CH*) to control the design and compatibility of new development with adjacent land uses and allow site plan control. Strip commercial development will be prohibited.
4. Regional centers with between 600,000 and 1.2 million square feet of leasable area should be developed in eastern Loudoun. The appropriate locations include the site already zoned for 600,000 square feet in the southwest quadrant of the Route 28/Route 625 intersection, the Route 28/Route 7 intersection area, and an 850,000 square foot retail center shall be located in the northwest quadrant of Route 625/Route 28.
5. In the development of the various scales of regional facilities, the following design standards should be followed:
  - a. There shall be at least two points of ingress-egress to the shopping center site; neither shall be direct access from Route 7 or Route 28.
  - b. Channel interior traffic flows and provide substantial landscaping and buffering around the facility.
  - c. The large and small regional retail facilities should be designed as clustered facilities with a range of retail services as defined in Appendix II (page 135). The zoning should be PD-SC with no adjacent commercial zoning. The

regional center in the northwest quadrant of the Route 28/Route 625 intersection should be zoned PD-CH and developed with groups of buildings adjacent to each other, with common walls and a front canopy. Individual free standing buildings of supporting or accompanying uses should be included in the plan. Adjacent office uses planned as a part of the retail center should function as transitional uses to the surrounding properties.

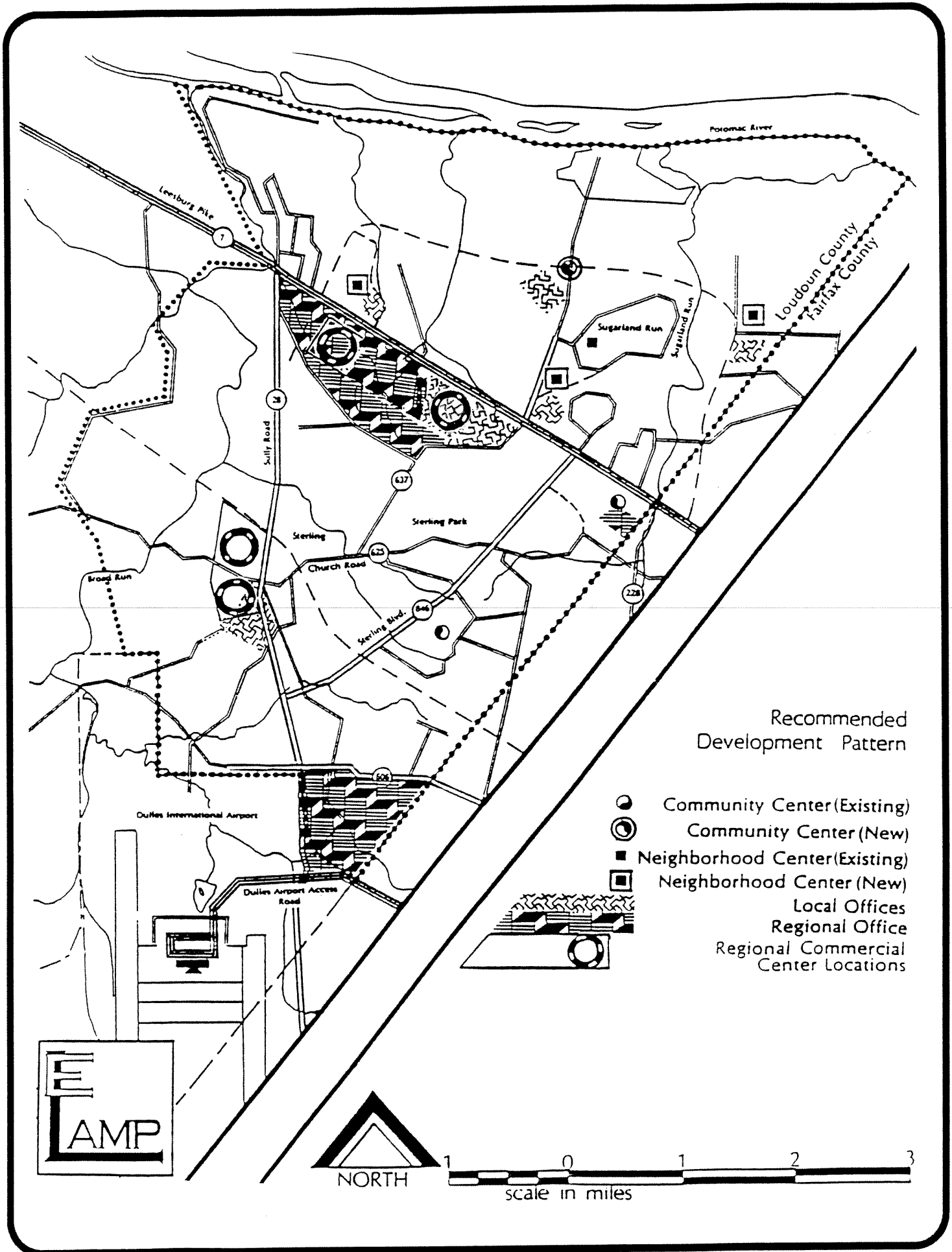
- d. Grade separated interchange contributions proffered by the developers for free flow of traffic.
  - e. Fringe parking for commuters.
  - f. Maintain or improve the capability of Route 7 to handle commuter traffic.
- 6. Transitional uses such as offices and mixed use developments should be located between large, commercial areas and single family neighborhoods.
  - 7. Environmental and public services considerations should dictate design of the commercial areas. New development should be of a construction type which requires a minimum of specialized fire and police protection.
  - 8. Regional office development proposals are appropriate on the property bounded by Route 606 on the north, Route 28 on the west and the Dulles Access Road on the south, as well as the eastern quadrant of the Route 7/Route 28 relocated intersection.
  - 9. Additional light industrial and regional or local office development is appropriate for the property currently zoned PD-IP adjacent to the intersection of Route 28 and Route 7. Proffers to implement the realigned interchange will be encouraged. It should be noted that a realigned interchange at Routes 28 and 7 is considered a vital component of the proposed transportation plan for this area. The County will encourage proffers to accommodate the realignment in this area.
  - 10. The property located between the Pocahontas (now Loudoun Tech Center) property, zoned PD-IP, south of Route 7 and Route 637 could be considered for local office and institutional uses as a transition between the more intensive uses to the west and lower density residential uses to the east of Route 637.

## **IMPLEMENTATION**

### **A. Concept for Commercial Developments**

The present commercial zoning districts are inadequate for the proper development of shopping centers in Eastern Loudoun. The PD-SC (*Planned Development-Shopping Center*) district does not address the differences in use

Figure 5





between the neighborhood, community and regional scale shopping centers. This district should be restructured to have three sub-districts corresponding to the three types of shopping centers (*similar to the PD-H and Flood Hazard districts*).

The C-1 commercial zoning district is a carry over from the 1959 Zoning Ordinance and remained substantially intact in the 1972 Ordinance. The standards of the C-1 district are inadequate to meet the needs and the desires of the County in the 1980's. There are no requirements for site planning and relatively few requirements covering such standard design elements as landscaping, buffering and parking lot design (*see Appendix, page 133*).

It is proposed that the C-1 district be transformed into a new "*General Commercial*" district that would involve some of the design and site plan standards and procedures that are required for the PD districts. As addressed in the residential and heritage conservation elements of this plan, in places such as old Sterling and the community focuses, the commercial zoning districts should be modified to encourage mixed residential-commercial uses.

Presently all of Loudoun County's commercial and industrial zoning districts limit development to a Floor Area Ratio (*FAR*) of .4. Considerations should be given to amending the Zoning Ordinance to allow a FAR up to 1.0 in those strategic areas where the Plan proposes extensive development. These density increases should only be allowed in areas designed for office parks and industrial parks. The effect of these changes (*assuming Loudoun has a substantial market potential*) would be to encourage development in planned areas and discourage scattered or sprawled commercial and industrial development.

The transportation element of this plan points out the need for managing access to the major arteries and that special attention should be given to the sectors near proposed interchanges. It is proposed that special overlay district regulations be created that would both manage access and limit immediate development on the major roads. This may require greater setbacks than would be required in the underlying zone and prohibit development in the actual land set aside for an interchange allowing the landowner to transfer the density either elsewhere on the site or to an adjacent parcel. Such a district or regulations would set out the standards for proper access and maintain an aesthetic buffer along these highways.

Finally, with the development of a Site Plan Ordinance, the landscaping, buffering, and parking lot regulations should be updated. A standard tree and shrub list should be written to categorize those plants that best survive in the Loudoun climate and in urban conditions. Planning regulations must recognize the need to reduce the parking space size requirements due to smaller cars, proper development of storm water management programs and parking lot designs that can be used by several businesses with needs for commuter fringe lots.

## B. Location of Regional Centers

Based upon past experience, Loudoun County has established and maintained a policy of protecting major highway corridors from commercial and retail development along the highway frontage.

With the current improvement (1989) of Route 28 to a six (6) lane facility and grade separations of both the Route 7/Route 28 and the Route 28/DAATR intersections, development of these regional facilities can commence. However, to function as viable built out centers, grade separation of some of the secondary roads identified in Phase II of the Route 28 plans will be necessary.

Route 7 will also experience highway capacity problems in the future. The Route 7 Corridor Study states that six (6) lanes will be necessary (page 182) to accommodate the traffic load. The previously adopted land use pattern south of Route 7 and east of Route 637, which called for employment uses (725 acres), may cause more peak hour transportation problems than the expected residential development in the area. Office and industrial uses promote high peak hour traffic volumes but commercial development has a "flatter" peak hour that does not compete with employment type development for highway capacity. The large regional shopping center could be located to the south of Route 7 if transportation improvements included in the commercial development are designed to control access to a shopping center, directing traffic to State secondary roads from Route 7 and reduce land use impacts on nearby residential areas to the north and east.

In addition to the general guidelines on pages 120, 123, and 133-140, the following highway improvements are examples of the type and magnitude of improvements which will be needed:

1. Development of a major arterial collector four-lane road connecting Route 7 to Route 28, to be designed as part of the State secondary road system, according to VDOT standards. This arterial road should be connected directly to Route 28 at the planned interchange location between Routes 638 and 625, and should tie into the Algonkian Parkway alignment at Route 7.
2. The improvements of the Route 637 and Route 625 corridors to Route 28 according to VDOT design specifications.
3. Improvements to the Route 7/Route 28 intersection consonant with recommendations of the *"The Route 28 (Sully Road) Improvement from Route I-66 to Route 7 Location Study"*.
4. The widening of portions of Route 7 to six (6) lanes and Route 28 to six (6) lanes will enable the opening of regional shopping centers.

Transportation improvements should be constructed by the time of the opening of the regional shopping centers.

The specific commercial development policies apply to the regional center, itemized on pages 120, 122, and 133-140, and will be required for all development applications for such a facility. The necessary service population will be 150,000 within a twenty (20) minute drive time of the site before a site could be developed for a regional center.

### C. Rezoning Guidelines

This plan provides for one large regional retail facility and two small regional retail facilities. The Plan also details many decision and locational guidelines which would have to be met to establish a site's eligibility for shopping center or commercial highway zoning. The final decision on a shopping center development proposal must take into account the standards and guidelines of this Plan which deal with land use relationships and the density and intensity of the use of the property.

The decision must meet the requirements of the Zoning Ordinance in accordance with the valid purposes of a zoning ordinance which are prescribed by Virginia Code Section 15.1-489 as follows:

1. To provide for adequate light, air, convenience of access, and safety from fire, flood and other dangers;
2. To reduce or prevent congestion in the public streets;
3. To facilitate the creation of a convenient, attractive and harmonious community;
4. To facilitate the provision of adequate police and fire protection, disaster, evacuation, civil defense, transportation, water, sewerage, flood protection, schools, parks, forests, playgrounds, recreational facilities, airports and other public requirements;
5. To protect against destruction of or encroachment upon historic areas;
6. To protect against one or more of the following: overcrowding of land, undue density of population in relation to the community facilities existing or available, obstruction of light and air, danger and congestion in travel and transportation, or loss of life, health, or property from fire, flood, panic or other dangers.
7. To encourage economic development activities that provide desirable employment and enlarge the tax base; and

8. To provide for the preservation of agricultural and forestal lands; or in accordance with the statement of the valid purposes of a zoning ordinance as such statement may have been amended at the time a determination of the location of a regional shopping center is made.

In locating and establishing the PD-SC zoning district for a shopping center, those matters required to be considered in drawing zoning ordinance districts as set forth in Virginia code Section 15.1-490 also must be considered.

While this Plan identifies several potential regional shopping center areas in Eastern Loudoun, future road capacities, land use patterns and impacts as discussed on pages 115-130, as well as market - population studies, indicate that Eastern Loudoun can accommodate only one regional shopping center in the next five (5) - ten (10) years. The shopping center proposal which most clearly implements the Plan's Guidelines and which voluntarily incorporates conditions that accomplish the purpose of this Plan, will receive the most favorable response from the County. In the decision making process, particular emphasis will be given to designs that will protect the community by insuring adequate highway facilities and mitigating traffic congestion associated with the development and the general urbanization of Eastern Loudoun, while reducing the land use conflicts in the immediate vicinity.

## **APPENDIX I**

### **OUTLINE OF COMMERCIAL DEVELOPMENT POLICIES**

- A. Amend the PD-SC zoning district.
  - 1. Define three sub-districts:
    - a. Neighborhood,
    - b. Community,
    - c. Regional.
  - 2. Categorize uses within the sub-districts.
- B. Amend C-1 zoning district to:
  - 1. Provide for Site Plan Control
  - 2. Institute landscaping, buffering and parking requirements.
  - 3. Provide for evaluation of Special Exception review by Board of Supervisors or by the Board of Zoning Appeals
- C. Establish a mixed-use commercial/residential district:
  - 1. As the focal centers of new communities.
  - 2. As in old Sterling, Leesburg, and other older communities.
- D. Amend the PD-OP and PD-IP districts to increase the FAR density:
  - 1. Increase the PD-OP up to 1.0 FAR (*Options*):
    - a. New sub-districts based on FAR density .4, .6, 1.0.
    - b. Sliding scale density based on adopted standards and criteria to be administered by Site Plan Committee or Staff.
    - c. Special Exception to the Board of Supervisors concurrent with a site plan.

2. Increase PD-IP up to .6 FAR:

Same options as above.

- E. Establish special district or regulations for development along major arterials and near interchanges:

1. Controlled access points.
2. Greater setbacks.
3. Density transfer on site or adjacent parcel to keep land clear for interchange.

- F. Adopt Site Planning Regulations:

1. Site Plan Ordinance
  2. Landscaping regulations, etc.
  3. Update parking regulations.
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- G. Reinforce Existing Commercial Property:

1. Promote "*village*" orientation with neighborhood retail facilities.
2. Limit commercial rezoning activity that conflicts with economically viable, existing commercial property.
3. Promote higher density housing in close proximity to commercial properties, especially for the elderly and handicapped.

## APPENDIX II

### DEFINITION AND DESIGN STANDARDS FOR SHOPPING CENTERS

#### NEIGHBORHOOD CENTER

- Size: Small, under 10 acres; between 25,000 and 100,000 square feet of leasable space. Between 2,500 and 15,000 people required for service population.
- Tenants: Convenience stores, laundries, drug stores, groceries and personal services.
- Function: Use for "daily" convenience shopping by nearby residents within 10 minutes of center. Services to reinforce the neighborhood and community identity. Should be associated with public facilities such as parks, schools and libraries to provide focal point for community or neighborhood.
- Location: Within residential neighborhoods, usually at intersection of local and arterial collector roads. Pedestrian access should be provided.
- Example: Lake Anne Center (*Reston*), Tall Oaks Center (*Reston*), Montgomery Center (*Montgomery Village*)

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#### COMMUNITY CENTER

- Size: Medium 10-25 acres; 100,000-300,000 square feet. 10,000-25,000 service population.
- Tenants: General goods and services but without a full range of specialty and comparison goods shopping. Tenants might include a supermarket, hardware, variety store and junior discount department stores.
- Function: "Weekly" convenience shopping and general, limited comparison shopping by residents within a 10 to 15 minutes radius. A community center should act as a center of community activity, by being a central element in an area and by being adjacent to other public facilities such as schools and parks. In addition, mixed-use centers should be encouraged. These would allow residential and commercial uses to occur in the same structure, so as to promote compact "town center" spaces and reinforce the village concept as defined in the Resource Management Plan.
- Location: On a main road, but not a major highway. Good visibility is required. Should have as complete a pedestrian access system as is possible.
- Example: Sugarland Plaza/Towncenter, Tysons's Plaza

## REGIONAL CENTERS

Size: Large, 75 acres and up; 600,000 - 1.2 million square feet. Market service population of 150,000 and up.

Tenants: Full range of comparison goods, stores and general merchandise, specialty shops and restaurants, some offices and other non-retail uses. At least two major department stores. No daily convenience tenants.

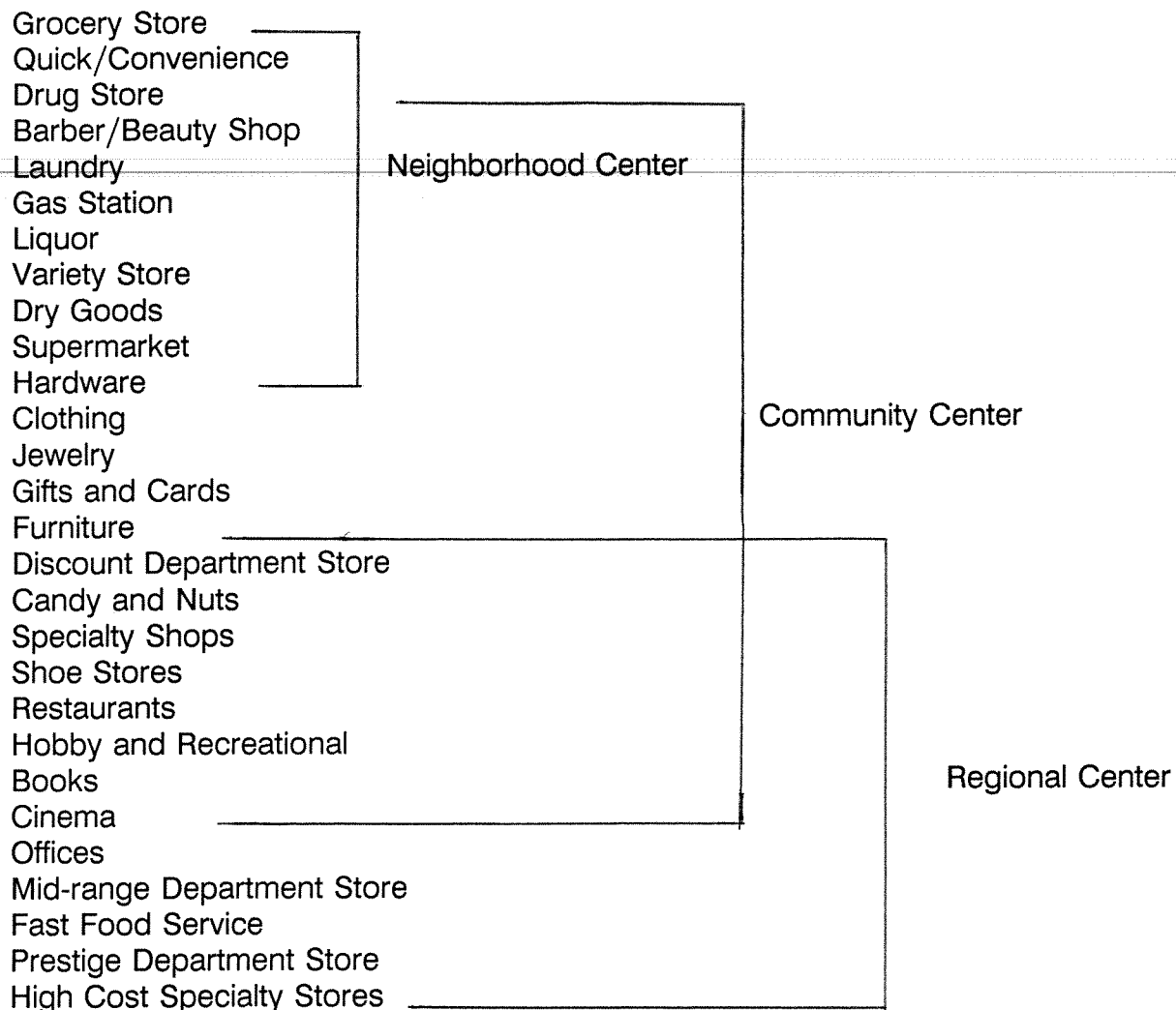
Function: "Monthly" comparison shopping for residents within a 20 minute radius.

Location: Access to major transportation routes. High visibility.

Examples: Fair Oaks (*Fairfax*); Lake Forest (*Montgomery County*).

## SPECTRUM OF SHOPPING CENTER TENANTS (Typical)

### STORE/TENANT





## APPENDIX III

### SITE PLANNING STANDARDS FOR COMMERCIAL DEVELOPMENT A GUIDE FOR DEVELOPING APPROPRIATE DETAILED ORDINANCES

#### A. Building Placement and Design

1. Scale, material and architectural treatment, particularly for neighborhood and community centers, should harmonize with nearby residential structures.
2. Natural drainage features such as swales and ponds should be conserved to the greatest extent possible.
3. Building lengths in strip and "L" centers should generally not exceed 500 feet, while a lesser dimension is preferable to conserve the neighborhood scale.

#### B. Traffic Access, Circulation, Parking and Loading

1. Small neighborhood centers may function adequately with only one point of access to an adjacent street; larger centers (*over four acres*) should have at least two points of access.
2. Entrances and exits must be located at least 100 feet from the nearest road intersection.
3. No structures or landscaping may obstruct sight distances from access points.
4. The site's vehicular and pedestrian circulation patterns should be separated where appropriate.
5. For neighborhood centers, no more than four rows of parking spaces should be located in front of the stores in order to reduce the visual impact of parked autos and allow clear visibility of shopping areas<sup>2</sup>.
6. Generally, parking spaces should be located within 350 feet of stores.<sup>3</sup>
7. Parking spaces should be designed primarily for small cars (*approximately 8' x 16' spaces*).

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<sup>2</sup> Joseph DeChiara and Lee E. Koopelman, *Urban Planning and Design Criteria*, (New York: McGraw Hill Book Co., 1975), p. 446.

<sup>3</sup> *ibid.*

8. Drive-in window facilities for banks and restaurants must be placed in a manner which will accommodate a queue of 3-6 vehicles. Such queue must not block parking spaces, access or circulation lanes.
9. Truck loading and maneuvering areas should not conflict with or block pedestrian or consumer vehicular access
10. The interior circulation pattern must permit vehicular circulation to all parts of the site without forcing traffic onto the adjacent public road.
11. Easy, safe pedestrian access must be provided from nearby residential areas.

C. Landscaping and Buffering

1. Natural site environmental features such as hedgerows, mature trees and berms should be integrated into the site's landscape plan.
2. Parking areas should be visually screened from adjacent streets and residential areas by depressing the parking area several feet and/or by construction of earthen berms. Wood or masonry fences and walls may be used if berms are not practical.
3. Parking areas should include landscaped tree and hedge areas of an extent to shade the parking areas, thereby reducing the heating and local climate effects of large paved areas.
4. All loading and storage areas must be screened from adjacent residential areas by earth berms, masonry walls, permanent wooden fencing, or dense landscaping.
5. The perimeter of all shopping areas should be landscaped with deciduous street trees along road frontages and opaque evergreen trees and hedges adjacent to residential areas. Detailed landscaping studies must be adopted and incorporated into a site plan ordinance.
6. Parking areas should not extend to the adjacent sidewalks. A minimum five foot green area should separate parking lots from sidewalks or adjacent streets in order to absorb water runoff and eliminate blockage of pedestrian access.
7. Required drainage and stormwater management facilities such as holding basins, drainage swales and culverts should be incorporated into the overall design for the commercial area.

D. Signs and Lighting

1. Signs for shopping centers should be developed as an integral part of the overall shopping center design. Graphics and support structures should be harmonious in style and material with adjacent residential land uses.
2. Identification signs should not exceed the height of adjacent buildings, particularly in neighborhood centers.
3. Parking lot lights should be directed away from nearby residential areas and should be designed to be compatible with residential uses in terms of height, brilliancy, form, texture, and character.

E. Design Specifications for Regional Shopping Centers

1. Location:

Tracts west of Route 28 north and south of the Route 625 intersection are appropriate sites for small regional centers and the tract south of Route 7 between Route 28 and Route 637 is appropriate for a large regional mall.

2. Size:

Regional centers should include 600,000 square feet in the case of the facility in the southwest corner of Routes 28 and 625, 850,000 square feet in the case of the facility in the northwest quadrant of the Route 28/625 intersection and 1,200,000 square feet for the facility at the Route 7/Route 28 intersection.

3. Transportation:

The regional shopping center should not diminish the flow of traffic on Route 7 or Route 28. Access to the shopping center shall be from a State secondary road, and not directly from Route 7 or Route 28. There shall be at least two points of egress and ingress to the shopping center.

4. Transitional Land Uses:

Planned commercial rezoning should also provide additional support facilities to promote a focal point of activity, i.e., office and light industrial development property surrounding the center could include PD-OP and PD-IP. There should be no provision for residential development along Route 28 or its adjoining secondary roadways, while open space or other transitional land use such as office buffers would be needed between any shopping center south of Route 7 and residential communities.

**5. Environmental Criteria:**

**Any rezoning in the Route 28 or Route 7 area should respect the floodplains and watercourses in the area.**

## **INDUSTRIAL AND ECONOMIC DEVELOPMENT PLAN**

### **INTRODUCTION**

Industrial development in eastern Loudoun County has increased substantially during the last decade. This growth has provided many economic benefits to the County in the form of more jobs and a larger tax base. The industrial activity in eastern Loudoun includes a large portion of the employment in the County. The industrial sectors account for a significant portion of the County's tax revenues, and these revenues help provide the funds needed to offset the net deficit which is incurred from most residential properties. Industrial growth can be expected to indirectly cause a substantial increase in residential growth and with it, the associated increase in demand for county services. This will happen because not all newly created jobs will be filled by present county residents. Many people will move into the County because of the new jobs. Still, the net fiscal impact of industrial growth in the short run must be assumed to be positive.

Recent trends in economic and employment characteristics in the eastern area and the County as a whole are as follows:

1. During the past two decades, the County has become a "*bedroom*" community to employment centers located in jurisdictions to the east. Approximately 60% of employed Loudoun County residents work in other jurisdictions. It is safe to assume that due to the eastern area's close proximity to the major employment centers of Fairfax County and Washington, D.C., the percentage of "*outcommuters*" for eastern Loudoun is as great or greater than the percentage for the County as a whole.
2. Dulles Airport has not been the major catalyst for industrial growth that it was expected to be, but a substantial increase in Dulles air traffic is anticipated and should cause an increase in employment growth in the area.
3. Most new industry in the County is located in the eastern Loudoun area.
4. Much of the industrially zoned land is in the eastern area.
5. The proposed parallel lanes along the Dulles Access Road are expected to greatly stimulate industrial and employment growth in the eastern Loudoun area.
6. The participation rate of the County's work force is rising, although most workers have jobs outside the County.

### **EXISTING INDUSTRIAL AND ECONOMIC DEVELOPMENT SITUATION**

The Eastern Loudoun Planning Area contains about a third of the County's total employment (See *Table 1, page 156*), over 40% of the industrially zoned land in the

County, and approximately 40% of the labor force. Although the eastern area has about a third of these primary economic resources, it has only 3.5% of the County's total land area. It is clearly evident that industrial and economic activity of the eastern area has a critical effect on the entire County.

Eastern Loudoun County currently has more than two dozen major industrial operations and about 6,000 acres of industrially zoned land. Of this 6,000 acres, about 5,000 acres are potentially suitable for industrial activity since some of the land has environmental constraints such as steep slopes and floodplains (*See Resource Analysis, page 159*). The major employment centers in eastern Loudoun include Dulles Airport, located on the edge of the area, the Route 28 Corridor which runs through a large area of industrially zoned land, and the Route 606 Corridor. About 8% of the industrially zoned land is developed. The future population and labor force growth offers a potentially large labor supply for new industries. Most of the industrial land has highway accessibility and adequate public utilities.

Industrial growth has been steady during the last few years. Most new firms have located along the Route 28 Corridor, the Route 606 Corridor and the PD-GI zone next to Dulles Airport (*See Figure 1, page 143*). At least 24 new industrial firms were established in the County between 1976 and 1979, accounting for about 1,242 new jobs.<sup>1</sup> Most of these were located in the eastern area.

The area has at least 25 major industrial operations (*See Table 2, page 157*). In addition to these existing firms, there are at least two new firms which are planning to locate in the area in the near future. Of the 25 existing industries, five industrial types are most commonly represented. They are: local consumption manufacturing (*five firms*), metal fabrication (*four firms*), warehouse (*three firms*), electronics (*three firms*), and research and development (*two firms*). Most of these have located in the area since 1976. The fact that there is a large proportion of these kinds of firms is not surprising since the locational factors which are important to them are ones which Loudoun County possesses (*See Resource Analysis, page 157*). The major locational factors which have attracted these firms are the wide choice of good, relatively low cost sites, reasonably good transportation access, adequate utilities and strong local markets. In addition, property taxes are lower in eastern Loudoun than in Fairfax County.

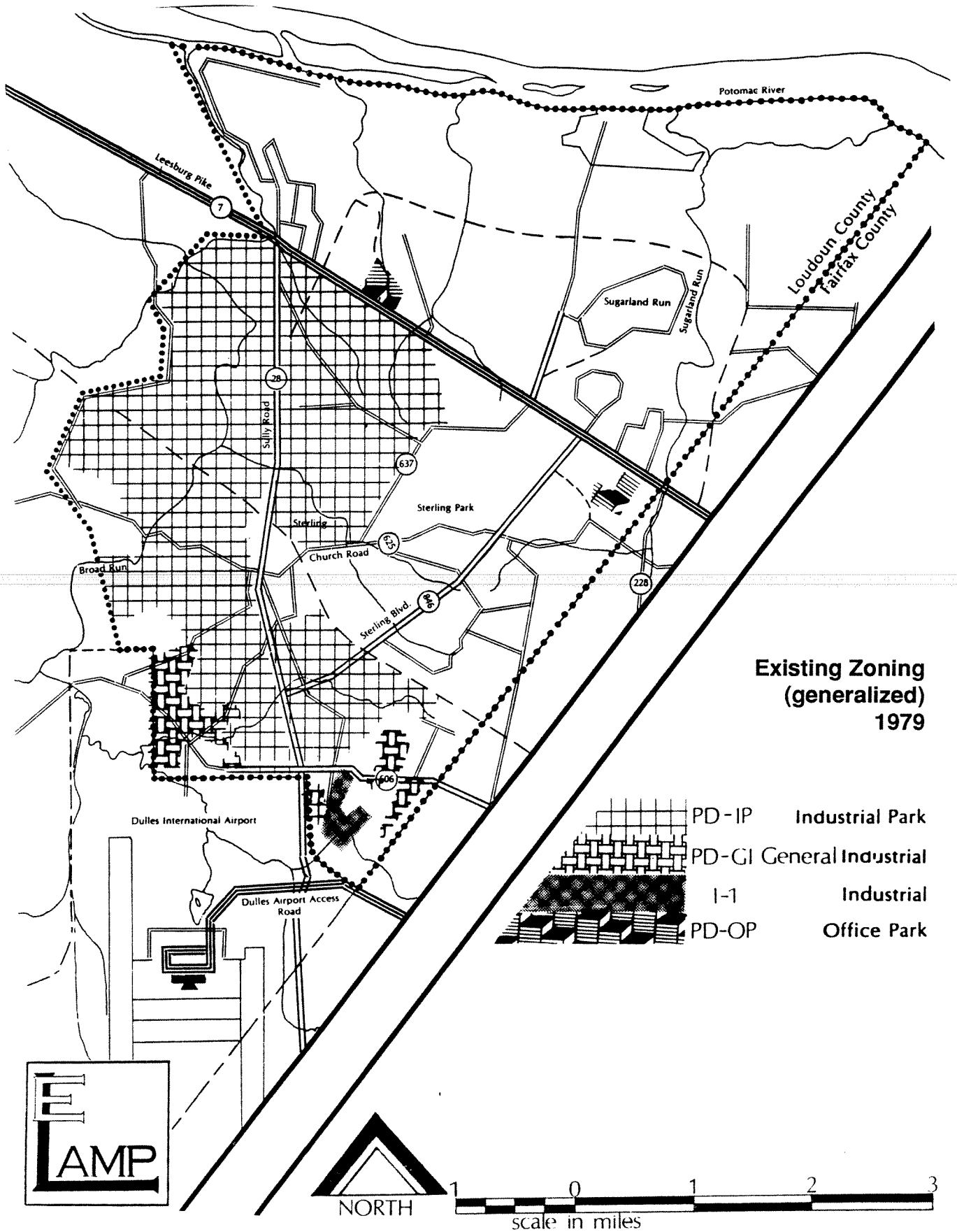
Loudoun County has a strong competitive advantage over neighboring jurisdictions as well as other regions with regard to several economic development location factors. The County should preserve its advantage in these areas (*air transport, taxes, quality of life*) and attempt to strengthen its competitive position in those areas in which it is lacking (*highway transportation and the cost of labor, land and housing*).

Due to the high rate of residential growth in the eastern Loudoun area, the County needs a substantial amount of new industrial growth in order to offset the fiscal deficits caused by the rapid residential growth. For planning purposes, it must be clearly understood that industrial growth will provide incentives for continued residential growth,

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<sup>1</sup> Loudoun County Department of Economic Development, 1979.

Figure 1



However, as previously noted, the County has no choice but to try to attract as much employment growth as possible, since some residential growth will occur regardless of the County policy toward economic development.

## POLICIES

The goals and policies for industrial and economic development in eastern Loudoun follow from those which are set forth in the Resource Management Plan. The county-wide goals for economic development as stated in the RMP are also applicable to the eastern area in particular (*RMP, page 247*). These two goals calls for establishing a wide range of employment centers which are environmentally sound. In addition, one other major goal should be defined for the eastern area. This goal can be stated as follows:

The County will promote the development of economic growth centers that focus industrial, commercial and residential development toward logical growth areas, rather than scattered throughout the landscape.

Stemming from these goals are the following policies which apply to not only the County as a whole, but also the eastern area in particular. These policies have been formally adopted by the County as part of the Resource Management Plan:

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1. Resources:

Location of new industries which are compatible with the existing environmental, transportation and work force resources will be encouraged by the County. (*RMP, page 248, #7*)

2. Employment:

Provision of employment opportunities and training for local young people, particularly those who have been educated within the County, will be encouraged. (*RMP, page 248, #9*)

3. Employment Centers:

The County will encourage the development of employment centers that are accessible to transportation systems, including the trail system. (*RMP, page 247, #2*)

4. Cluster Development:

Clustering of residential, industrial and commercial land uses in planned communities will be encouraged in order to reduce travel times and to give new communities a strong identity. (*RMP, page 247, #3*)



5. Public Access:

The County will encourage the location of employment centers near residential areas and public facilities in order to maximize public access and efficiency of public service facilities (*RMP, page 247, #4*)

6. Transition:

Establishment of compatible transitional land uses as links between industrial centers and low density residential areas will be encouraged.

In addition to the applicable policies set forth in the RMP, other supportive policies which are aimed specifically at the eastern area are:

1. Expansion of Services:

The County will encourage the expansion of services and utilities that will promote industrial growth in eastern Loudoun.

2. Diversity of Employment:

The County will encourage the development of a compatible mix of industries and businesses to provide a wide range of employment opportunities.

3. Environmentally Sound Development:

Development of clean, non-polluting industrial operations, particularly offices and research centers will be encouraged.

4. Speculative Development:

Development of speculative office and warehouse space in order to offer prospective corporations a place to locate will be encouraged by the County.

5. Mixed-use Development:

The County will encourage mixed-use developments where employment centers are within walking distance of residential areas.

6. Labor Force:

The County will encourage the establishment of new employment centers and businesses which will draw upon the existing labor force in the area rather than attract new residents from outside the County.

7. Landfill or Waste Disposal Operations:

Landfill operations that are used for the disposal of refuse, construction waste or sludge should be compatible with the adjacent land uses. The landfills should be located in the industrial zoning districts and designed to limit noxious odors, air pollution and ground water contamination. They should be situated so as not to be visible from surrounding properties. Any landfill located in close proximity to residential development should be phased out and a re-use plan established.

8. Noise Attenuation:

Development located near or within the FAA designated NEF 40 and NEF 30 contours should incorporate noise attenuation procedures in the building design plans.

9. County Participation:

The County will participate in the promotion of industrial activity and growth in eastern Loudoun and throughout the County.

10. Zoning:

All industrially zoned land in eastern Loudoun should be included in a planned zoning district (PD).

These additional policies overlap somewhat with the county-wide policies, but provide more specific efforts for the County to pursue with regard to the eastern area. This overlap is due to the dominant role that the eastern area's resources play in the County's overall economic growth.

## **PROGRAM IMPLEMENTATION**

1. The County shall encourage industrial development in eastern Loudoun by supporting the provision of services and utilities to the industrially zoned areas that have the need and which are identified in this Plan.

Areas which are determined to be the most appropriate should have the highest priority for utility extensions in order to encourage further industrial development. Approximately 1,500 acres of industrially zoned land in eastern Loudoun are not adequately served by roads or sewer. The County should encourage the extension of such facilities into areas which are otherwise suitable for industrial development and should adopt a policy of encouraging the Loudoun County Sanitation Authority to sell bonds to fund the extension of sewer lines to appropriate industrial sites which have immediate potential for compatible development.

2. The County shall focus on encouraging the expansion of existing industrial firms.

Most new jobs result from the expansion of existing operations. Therefore, the County shall concentrate on keeping local firms satisfied and promoting their expansion.

The Loudoun County Department of Economic Development is the primary agency engaged in this ongoing effort. This activity is a vital part of that department. In addition, the Loudoun County Department of Planning can be called upon to assist in data collection and analysis, as well as coordination and liaison work between county and state agencies and existing local firms. Some of the problem areas on which the County could focus in order to encourage expansions include the following:

- a. Insure that existing firms have proper zoning adjacent to them in order to absorb expansion.
- b. Work with the VDOT to help solve any highway problems which may be stumbling blocks toward expansion, such as traffic congestion, road maintenance and road improvements.
- c. Assist existing firms in gathering and analyzing information needed for submission to the County during the proposed impact review process.

3. The Department of Economic Development, in conjunction with the Comprehensive Planning staff shall undertake a study which will identify firms that have the potential for locating in the County in general and the eastern area in particular.

Making direct contact with a few specifically appropriate firms is usually more cost effective than an expansive, general advertising effort in newspapers and magazines without such contact.

The Department of Economic Development is currently undertaking a study which identifies the kinds of firms in the region and nation which might be likely prospects for relocating or expanding to Loudoun County. This study requires a substantial research effort, but will be more cost effective than blanket advertising. The study identifies general industrial types as well as individual firms whose needs would coincide with the locational factors that were identified, in the Resource Analysis (page 159). Once these firms are identified, they will be contacted directly and provided with information about the County's resources. Contact with these firms will then be made on a regular basis so that they can be kept up-to-date on the County. Such a study is a continuous activity carried out as part of the County's Economic Development Program.

4. The County shall provide as many incentives as possible for County residents to work within the County.

Many local workers, particularly in eastern Loudoun, have jobs in other jurisdictions. The County, in effect, loses large amounts of revenue due to such "out-commuting". Incentives should be established which would encourage residents to work within the County.

The provision of incentives for eastern area residents to work within the County will require many different programs and activities on the part of the County. There are at least three major ways in which the County can encourage the development of incentives for local employment.

First, as part of its ongoing activity, the Department of Economic Development can focus its efforts on attracting the kinds of firms which could hire people who live in eastern Loudoun. Presently, the County does not have detailed information concerning the education and occupation characteristics of residents, but much of this kind of information will be forthcoming from the 1980 census. Until then, the County can make some general assumptions about the occupations of the eastern work force. This labor force includes many people who commute to Fairfax County and Washington, D.C. It is likely that many of these are professionals who work for the federal government or for private consulting firms. The northern Virginia region has many scientific, electronics and other industries and fortunately, the resources which this area possesses are appropriate location factors for these kinds of firms (*refer to Resource Analysis, page 159*).

Second, the County can assist local firms in attracting local employees by making firms aware of local labor force resources, by providing demographic data, by assisting with general promotional activities sponsored by such groups as the Chamber of Commerce, and by making local citizens aware of employment opportunities.

Third, the County can work aggressively to establish a viable pedestrian and bicycle trail system which connects residential areas with employment centers. The establishment of such an alternative transportation system touches on several needs that eastern residents have. A good trails system would save energy by reducing auto travel, would provide additional areas of active recreation, help conserve scenic resources and make constructive use of otherwise undevelopable areas such as floodplains.

The ongoing effort to attract new firms and aid local firms is one that is currently being performed by the Department of Economic Development. The establishment of a trails system is a major proposal of this Eastern Loudoun Area Management Plan (*See Community Design Plan, page 90*) and shall be pursued with diligence by the County.

5. Loudoun County, in conjunction with Fairfax County, will continue to investigate the feasibility of establishing a foreign-trade zone on or near Dulles Airport in order to help attract manufacturing firms.

A foreign trade zone is an area which is assigned special legal status by the U.S. Department of Commerce. The basic purpose of such a zone is to reduce the operating costs of a business engaged in international trade by deferring, reducing or eliminating U.S. Customs import duties or excise taxes on products produced for export. The result of such benefits is to encourage the development and growth of industries which manufacture and assemble products for international trade.

Consultants for Fairfax County completed an extensive study in 1976 of the feasibility of establishing a foreign trade zone for the Dulles Airport area. The general conclusion of the study was that it would be, in fact, feasible to establish such a zone due to the increasing international import and export activity at Dulles International Airport, and due to the airport's strategic location in relation to population centers of the northeast, south-central and mid-Atlantic regions of the U.S. The study recommended that the zone be operated by a private contractor, on a franchise basis, as a public utility. The proposal for such a project in Fairfax County has been delayed due to a loss of previously committed private financial support.

Loudoun County shall take two major steps toward establishing a foreign trade zone. First, the County shall work closely with Fairfax County officials to continue to pursue the effort to establish a trade zone. Fairfax has done a substantial amount of basic groundwork and preliminary studies toward this effort. The two counties should work closely together since both may benefit greatly if a trade zone is established, and neither will benefit if one is not established.

Second, the County shall make a survey of local firms to determine which ones might be interested in using a foreign trade zone. The true viability of such a zone may not be known until after it is established, due to the complex cost/benefit trade-offs involved with deferrals or reductions in duties vs. increases in operating costs within the trade zone itself. However, an exploratory survey shall be made in order to get an idea of the level of need and interest among the existing local manufacturing industries.

6. The County will investigate the feasibility of establishing a county sponsored industrial park in order to provide existing facilities for prospective firms to lease or purchase.

The County needs speculative office, manufacturing and warehouse space for prospective firms who wish to lease space or who wish to relocate immediately. The County might consider financing the development of its own industrial park in the eastern Loudoun/Dulles Airport area. This will require a detailed market study, some advanced commitment from future tenants or buyers, and acquisition of

adequate financing. The first step should be to undertake a market study to determine if such a project would be any more feasible for the public sector than it has been for the private. A public, non-profit, Industrial Development Authority could help in providing funds for industrial expansion and could assist in acquiring industrial development bonds, utility extensions and land for new industries.

7. The County will investigate the feasibility of establishing a Flood Control District in the present PD-GI zone adjacent to Dulles Airport.

Currently, there are several significant industrial operations which are located within the limits of the 100 year floodplain adjacent to Horsepen Run near Dulles Airport. The County's current and future policy is to prohibit development in the 100 year floodplain. If this policy is upheld, it would preclude these firms from expanding. The County, however, does not want to limit the expansion capability of any existing firm. On the other hand, the County does not want to set a precedent for construction in the floodplain. A possible solution may lie in the creation of a Flood Control District for the existing PD-GI zone which would require that the necessary flood control structure be built to prevent the damage and pollution consequences of substantial flooding in the area. These structures would be funded by the firms which are located within the floodplain and by firms whose facilities are contributing to the increase in floodplain area or increased risk of flooding. The County should contact these firms, explain the alternatives to them and determine whether or not such a Flood Control District would be useful and feasible.

8. The County shall enact a Tax Incentives Ordinance for substantially rehabilitated older structures.

This Ordinance will provide incentives for owners of older industrial and commercial properties to rehabilitate existing structures (*refer to the Heritage Conservation Plan for detailed discussion of this program*).

9. The County will amend the Zoning Ordinance in order to make it more feasible for developers to create mixed-use developments.

The ordinance amendment proposal should contain three major points. First, it should be clearly stated that the present planned development zones do in fact allow mixed-uses to the extent that office, commercial and residential activities can be located adjacent to each other. Second, the amendment should contain wording that allows conditional approval of mixed-use structures where two or more compatible uses are located in the same building. Third, the exact requirements of a development plan proposal which is submitted by the developer should be specified.

10. The County will investigate the feasibility of increasing the allowable floor area ratio in those areas which are the most appropriate for industrial development (See Figure 2, page 152).

The allowable floor area ration (*FAR*) might be increased in the areas shown in Figure 2, page 152). These are areas which are particularly appropriate for new industrial growth and include some areas which have the potential for viable mixed-use development. The allowable floor area ratio could be augmented by amending the Zoning Ordinance so that it allows a specific increase in FAR for those areas indicated in the Eastern Loudoun Area Management Plan, by Special Exception from the Board of Supervisors. This would eliminate the necessity of creating a new zone or changing the zoning map.

11. The County will determine whether or not the amount of land zoned PD-GI (Planned Development-General Industrial) should be increased in order to provide more choices for the kinds of industries that can locate in such a zone. (See Figure 3, page 153)

Several items should be contained in this amendment proposal. First, the PD-GI zone should be expanded to include some of the land around Dulles Airport. Second, the performance standards for continued industrial operations should be updated to reflect current needs. Third, the Ordinance should be amended so that site plan approval is required for all development proposals in the I-1 zone. Fourth, a new institutional/industrial zone should be created to allow more flexibility for economic development which would benefit the County.

12. A Highway Overlay Zone shall be established which puts strict controls on land uses adjacent to primary and secondary roads including requirements for adequate buffers between the highway and any industrial operation.

The Highway Overlay Zone will apply to all primary and secondary roads and will include requirements for entrance design, landscaping, buffering and set-backs. Where possible, these requirements will be expressed as performance standards in order to allow maximum flexibility for the developers.

13. Hidden Lane Landfill operation north of Route 7 in the Route 28 vicinity will be redefined in terms of its continued operation. This existing landfill operation, located between the CountrySide and Broad Run Farms residential developments is a heavy industrial use located in a predominantly residential district. The industrial use is incompatible with the residences and should be phased out or limited in expansion capability to conform with the character of the area. A re-use plan should be submitted for County review once the legal status is resolved concerning the landfill's original use permit. If operation is permitted to continue at the site, the following considerations should be adhered to:

Figure 2

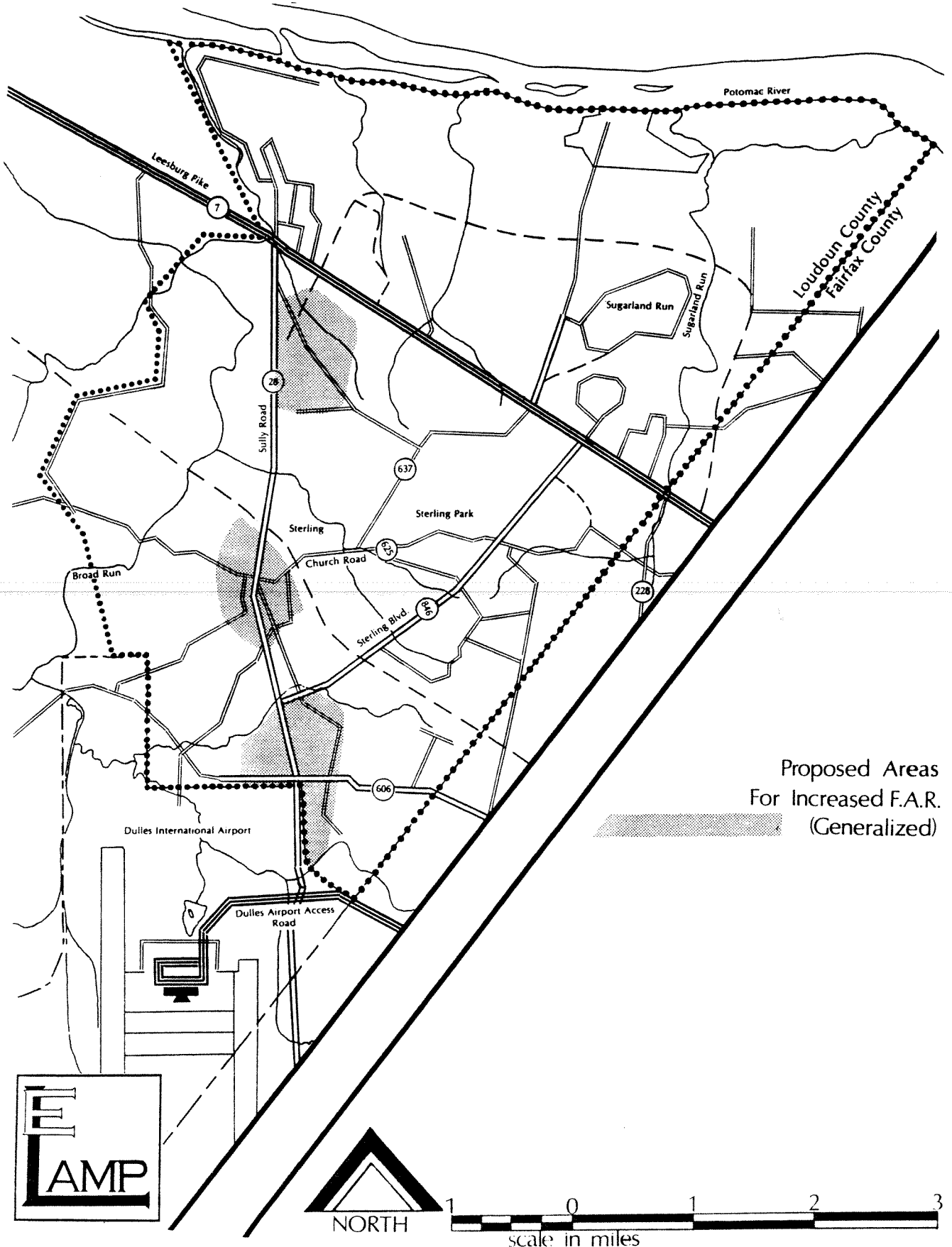
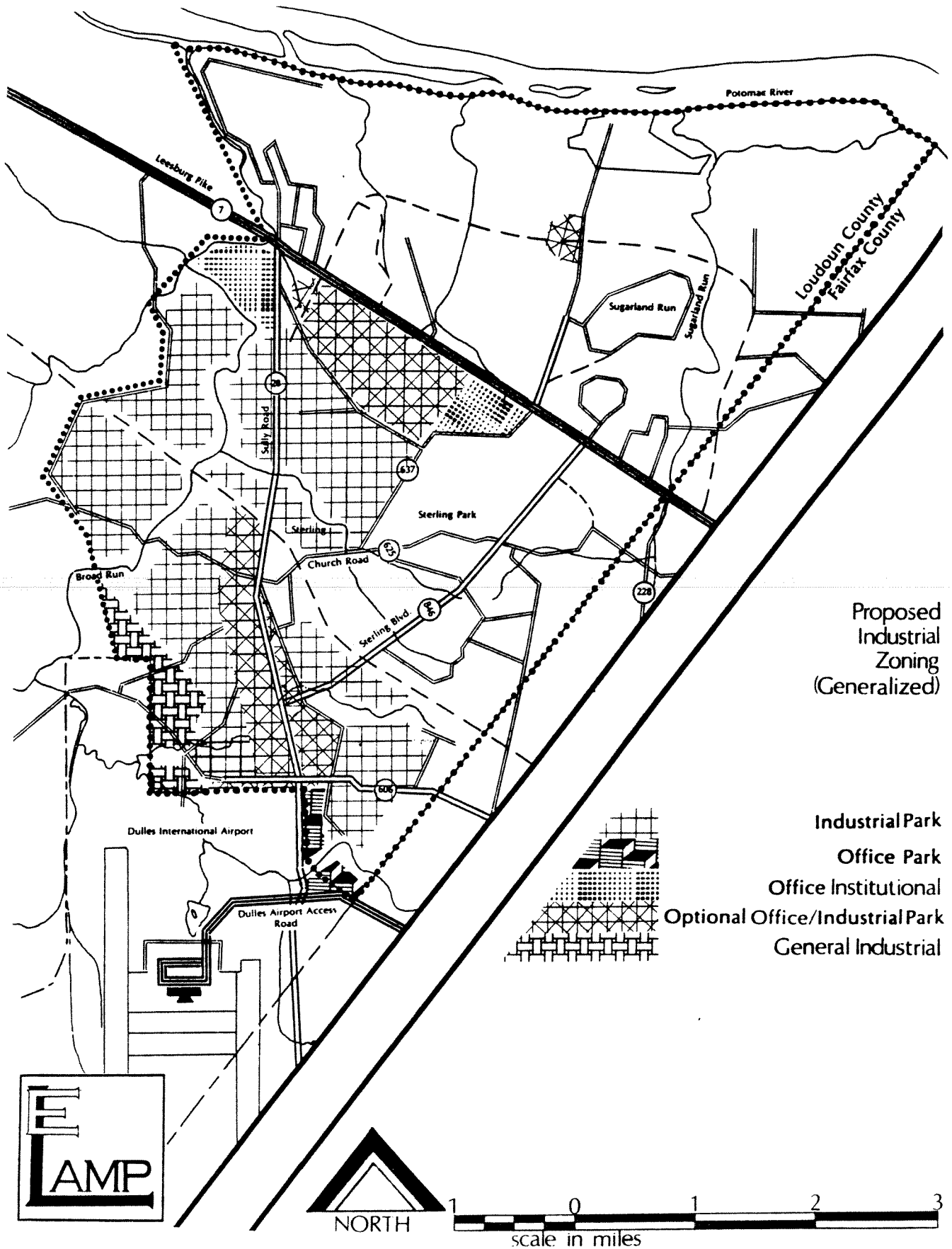




Figure 3



#### Environmental Considerations:

- a. No filling in the Potomac 100 year floodplain.
- b. Visually screen from adjacent land uses (*height limit may be necessary*).
- c. Prevent groundwater contamination from landfill leachate.
- d. Secure fill slopes to prevent erosion (*2:1 slopes may be too steep*).
- e. Provide on-site detention basins for sediment settling.
- f. On-site fire control in case of methane gas explosion or ignition.
- g. Dense, heavily planted buffer (*200'*) to help minimize dust, particulates and litter affecting adjacent properties.
- h. Strict controls on truck traffic and equipment operation (*i.e., time constraints*) to reduce noise to neighboring land uses.

#### Transportation Considerations for Property Between the Landfill and Route 7:

- i. Dedicate the Route 28 "*Loop*" right-of-way for both the grade-separated interchange on Route 7 and the actual roadway as defined by the Route 28 Corridor Study.
- j. Improve the entrance to a commercial standard access point with deceleration lanes and right-of-way dedication and secure a valid VDOT permit.
- k. Buffer the existing residences from the roadway.

#### Zoning Considerations for Property Between the Landfill and Route 7:

- l. The existing R-1 and A-3 property should be rezoned to a PDH district while the existing landfill area should be designated "*open space*" once the operation is complete (*see Residential section design details*).

## **APPENDIX I**

### **INDUSTRIAL AND EMPLOYMENT INVENTORY**

For the purpose of data gathering, policy analysis and land use decision making, the method of establishing categories for industrial land use will be similar to that of the County's Zoning Ordinance, and that of the Virginia Employment Commission's industrial categories. For purposes of describing and defining industrial uses, the industrial zone category will generally include all businesses except retail commercial, independent professional offices, farming and recreational uses. Industrial zoning is divided into three general categories: heavy, medium and light. Examples of heavy industry include mining and quarrying operations, as well as large manufacturing operations. Also included in the heavy industry classification are those activities such as rendering plants, steel mills, paper mills, power generation plants, etc., which could have particularly adverse environmental or aesthetic impacts. The medium industrial category includes light manufacturing, large laboratories, warehousing and similar activities. Light industry includes offices, research and development operations, electronic parts assembly plants, computer operations, etc. Generally, these categories represent a spectrum based upon potential visual, transportation and environmental impacts. The existing zoning districts for industrial uses are: I-1 (*general industrial, heavy industry*), PD-GI (*planned development-general industrial, heavy industry*), and PD-IP (*planned development-industrial park, medium and light industry*). (Refer to Figure 1, page 143).

An estimate of the current level of employment in the eastern Loudoun area was made by compiling information from various sources. Estimates were made for each employment sector and are shown in Table 1, page 156. The total estimate is assumed to be somewhat higher than the true level of employment because the major industrial category includes some firms which actually fit into other sectors. The reason for this overlap is that the data for the major industrial sector was compiled from a detailed survey, whereas the data for some of the other sectors was estimated by using employees to population ratios.

For a detailed inventory and analysis of existing industrial resources, refer to Table 2, page 157.

| <b>TABLE 1</b>   |                       |  |
|--|-----------------------|--|
| <b>ESTIMATED EMPLOYMENT IN THE EASTERN LOUDOUN AREA - 1979</b> |                       |  |
| <b>Sector</b>  | <b># of Employees</b> | <b>Source</b>  |
| Major Industrial <sup>2</sup>                                  | 1,023                 | Inventory by Loudoun County Dept. of Planning and Dept. of Economic Development.     |
| Retail Commercial  | 1,150                 | Assumes 435 sq. ft. per employee   |
| Federal Government:<br>Other than Dulles                       | 88                    | U.S. Office of Personnel Management  |
| Dulles Airport   | 687 <sup>3</sup>      | National Capital Planning Commission   |
| Local Government   | 454                   | Superintendent of Schools<br>Director of Libraries, Director of Parks and Recreation |
| Construction   | 493                   | Assumes 19.7 employees per 1000 population (RMP, p. 116)                             |
| Services   | 1,190                 | Assumes 47.6 employees per 1000 population (RMP, p. 120)                             |
| Transportation,<br>Communication and<br>Utilities              | 550                   | Assumes 20.5 employees per 1000 population (RMP, p. 117)                             |
| Finance, Insurance and<br>Real Estate                          | 262                   | Assumes 10.5 employees per 1000 population (RMP, p. 121)                             |
| Other  | 1,390                 | Assumes 50 employees per 1000 population (RMP, p. 127)                               |
| <b>TOTAL</b>   | <b>7,287</b>          | Represents 34% of total County employment using 1980 total estimates in RMP, p. 105  |

<sup>2</sup> Includes light, medium and heavy manufacturing industries.

<sup>3</sup> 1976 estimates.

## **EXISTING INDUSTRIAL OPERATIONS**

Table 2 shows a partial inventory of the major industrial firms in the eastern Loudoun area. The data in this table was obtained by telephone interviews and records of the Commissioner of the Revenue and the Department of Economic Development.

| TABLE 2                             |   |                        |                               |                |   |
|-------------------------------------|---|------------------------|-------------------------------|----------------|---|
| INDUSTRIAL FIRMS IN EASTERN LOUDOUN |   |                        |                               |                |   |
| Firm                                | Product/<br>Activity                            | Number of<br>Employees | Sq. Ft.<br>Encl. <sup>4</sup> | Total<br>Acres | Annual Prop.<br>Tax Revenue<br>to County <sup>5</sup> |
| Loudoun Quarries                    | Crushed stone                                   | 20-25                  |                               | 289            | \$8,036   |
| Pro-Type Industries                 | Machine & metal fabrication                     | 22-27                  | 8,000                         | 2              | 2,225   |
| Superior Iron Works                 | Steel fabrication & erection                    | 71                     | 38,000                        | 3              | 7,378 <sup>6</sup>                                    |
| Century Steel                       | Structural Steel                                | 15                     | 8,500<br>(lease)              |                |   |
| Trowbridge Steel                    | Steel fabrication                               | 20-25                  |                               | 3              | 4,017   |
| Virginia Concrete                   | Ready-mixed concrete                            | 20-30                  |                               | 10             | 3,820   |
| Sterling Enterprises                | Metal products                                  | 27                     | 20,450                        | 3              | 2,380   |
| Dowty-Rotol <sup>7</sup>            | Aircraft parts wholesale & repair               | 240                    | 54,000                        | 39             | 4,320   |
| Engen, H.O.                         | Brick and block supply                          | 25                     | 6,000                         | 3              | 1,666   |
| Preferred Plastics                  | Molded Polystyrene                              | 101                    | 80,000                        | 15             | 9,618   |
| Shade Shop                          | Manufacture window coverings                    | 50                     | 23,000                        | 3              | 4,320   |
| State Equipment                     | Construction equipment; distribution and repair | 10-15                  | 10,000                        | 10             | 2,363   |
| Radiation Systems <sup>8</sup>      | Communication                                   | 164                    | 90,000                        |                |   |

<sup>4</sup> Approximate.

<sup>5</sup> Does not include machine and tools tax or utilities taxes.

<sup>6</sup> Does not reflect expansion completed 1979.

<sup>7</sup> Expansion underway.

<sup>8</sup> To begin operation 1980.

TABLE 2

**INDUSTRIAL FIRMS IN EASTERN LOUDOUN**

| Firm                                    | Product/<br>Activity             | Number of<br>Employees | Sq. Ft. Encl.      | Total<br>Acres | Annual Prop.<br>Tax Revenue<br>to County |
|---|----------------------------------|------------------------|--------------------|----------------|--|
| Continential Telephone Co.              | Regional offices                 | 350                    | 100,000<br>(lease) |                |  |
| Expressway Contractors                  | Highway Construction             |                        | 8,000              | 15             | 1,623                                    |
| Insulated Building Systems <sup>9</sup> | Insulation Manufacturing         | 35-40                  | 11,250             | 3              |  |
| Systems Technologies                    |                                  |                        | 20,000             | 3              | 5,236                                    |
| Luck Stone Center                       | Wholesale Landscape Materials    | 15                     | 10,000             | 6              |  |
| A.M.F.                                  | Electronic Research              | 24                     | 11,200<br>(lease)  |                |  |
| Gamma Flux                              | Electronic Manuf. & Distribution | 15                     | 10,000<br>(lease)  |                |  |
| Metro Printing                          | Printing                         | 150                    | 40,000             | 10             | 9,486 <sup>10</sup>                      |
| Greenfield Institute                    | Construction Labor Training      | 6                      | 24,670             | 22             | 6,554                                    |
| Experimental Pathology                  | Animal Pathology R & D           | 56                     | 8,300              | 12             | 3,695                                    |
| Hazelton Labs                           | Life Science Research            | 50-55                  | 100,000            | 11             | 19,823                                   |
| E.I.T.                                  | Electronic Instruments           | 40                     | 12,000             |                |  |
| McGee Crane                             | Storage-Crane Rentals            | 9                      | N/A                | 3              |  |
| Falcon Concrete                         | Ready-Mixed concrete             | 14                     |                    | 3.7            |  |
| G.A.M. Printing                         | Printing                         | 10-20                  | 5,000              | 1              | 809                                      |
| <b>TOTALS</b>                           | <b>28 FIRMS</b>                  | <b>1,559-1,604</b>     | <b>598,370</b>     | <b>463</b>     | <b>\$101,893</b>                         |

<sup>9</sup> To begin operation 1980.

<sup>10</sup> Does not reflect expansion completed 1979.

## **APPENDIX II**

### **RESOURCE ANALYSIS**

The most valuable industrial resources in Loudoun County are located in the eastern area, both in terms of existing employers and the basic resources which can be expected to attract new industries.

Location factors are those major positive and negative features which any industry will evaluate and analyze when considering whether to locate in the area. There are many locational factors, but the most important ones, and eastern Loudoun's status with regard to them are as follows:

#### **1. Labor Force:**

There is a large potential labor force in the Fairfax-Loudoun area, which would include the Chantilly, Herndon, and Reston communities. This labor force tends to have a high income due to the effect of high federal employment, the generally high wages found in most urban areas, and the large number of scientific, administrative, and other professional employees. It is characterized by a large number of new, young entrants annually and the size, skill level and age of it can generally be considered as positive aspects. It would appear then, that the eastern Loudoun labor force, when analyzed as a locational factor for new industries, could be expected to attract rapidly growing scientific and technical firms which need new young employees and which are prepared to meet the higher than average salary levels. The labor force is expanding rapidly, but the trend, as previously discussed, is toward increasing levels of residents commuting to work in other jurisdictions. Most of the existing labor force is skilled and demands high wages, thus making it more difficult to attract general manufacturing firms. If such industries do locate in the County, appropriate, moderately priced housing will be needed for the employees.

#### **2. Potential Sites:**

The eastern Loudoun area has a large amount of industrially zoned land, most of which has relatively good transportation access and topography which is suitable for industrial development. The eastern area has over 40% of the industrially zoned land in the County. This land is shown in Table 3, page 160 and Figure 1, page 143.

| TABLE 3  |                                |  |
|--|--------------------------------|--|
| EXISTING INDUSTRIALLY ZONED LAND   |                                |  |
| ZONE   | ACRES IN<br>EASTERN LOUDOUN    | % OF TOTAL<br>INDUSTRIALLY<br>ZONED LAND |
| <u>Planned Development-Industrial Park</u><br>(PD-IP)<br>Permitted uses include: agriculture forestry, research and development, light and medium manufacturing and assembly such as scientific instruments, paper products, electrical machinery, pharmaceuticals, etc. (Site Plan approval required) | 5,704                          | (40%)                                    |
| <u>Planned Development-General Industrial</u><br>(PD-GI)<br>Permitted uses include: those allowed under the PD-IP zone as well as borrow pits, storage areas for building materials, equipment, lumber, coal or petroleum products, public utility facilities, etc. (Site Plan approval required)      | 443                            | (3%)                                     |
| <u>Industrial</u><br>(I-1)<br>Permitted uses: primarily created for uses which are natural resource oriented such as sawmill, quarry, mine, borrow pit, sewage disposal, etc. (No Site Plan approval required)   | approx. 100                    | (less than 1%)                           |
| <u>Planned Development-Office Park</u><br>(PD-OP)<br>Permitted uses: administrative and business offices, professional offices such as medical and dental. (Site Plan approval required)   | 37                             | (less than 1%)                           |
| Total Industrially Zoned Land in Eastern Loudoun:<br>Less Environmentally Critical Areas<br>Total Acres of Potential Industrial Land   | 6,184<br><u>1,250</u><br>5,035 | (44%)<br>(9%)                            |



Presently, most of the industrially zoned land in eastern Loudoun is concentrated along the Route 28 corridor (*PD-IP*) and on the northeast side of Dulles Airport (*PD-GI*). Most of this land is *PD-IP* and some of it is located in or near the 100 year floodplain (see *Figure 1, page 143*). Except for a relatively small amount of *PD-GI* land, the area that is zoned for industrial uses in eastern Loudoun is *PD-IP*. Environmental constraints reduce the total amount of potential industrial sites somewhat, but, nevertheless, eastern Loudoun has one of the largest contiguous blocks of industrial land in the Washington, D.C. area, and should be marketed as such to potential users.

The projected land requirements for industrially zoned property in Loudoun County over the next decade range from a high estimate of 3,108 acres by 1990 to a low estimate of 1,967 acres by 1990.<sup>11</sup> It can be assumed that the great majority of this development will occur in eastern Loudoun.

### 3. Transportation:

The eastern Loudoun area generally has good transportation resources with which to attract and retain industry. The dominant transportation element is Dulles Airport since it is one of the finest airports in the country and is in close proximity to Washington, D.C. Air facilities, however, are not usually a major locational consideration for most industrial firms. Truck transportation systems are more important to most firms than is air travel.<sup>12</sup> Rail is sometimes helpful. The eastern area has an adequate road system which does connect to major east-west and north-south interstate highways. This is an important factor for most industrial firms. There is no rail service in Loudoun County which is a disadvantage in terms of attracting some industries, particularly the heavy manufacturing operations. However, truck transportation is the most important mode of transport for most manufacturing firms. Eastern Loudoun has relatively good highway access compared to jurisdictions in many other regions, although not as good as some competing local jurisdictions such as Frederick County, Maryland and Fairfax, Frederick and Prince William Counties, Virginia. The principal reason is the lack of an interstate highway. Transportation access in terms of the movement of labor, would improve with the construction of the proposed Dulles Access Toll Road, but only if truck traffic is guaranteed the use of the toll road would the County's highway accessibility be markedly improved.

### 4. Utilities:

Most of the eastern Loudoun area has sewerage and water service. This is usually a requirement for industrial development. As long as the County is able to offer adequate sewer and water capacity to prospects, it should be in a good position to attract industrial growth.

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<sup>11</sup> Loudoun County Department of Planning and Zoning Resource Management Plan, page 128.

<sup>12</sup> Commonwealth of Virginia Governor's Office, Division of Industrial Development, Loudoun County Industrial Location Factors and Potential Economic Activity, July 1974.

5. Markets:

In addition to the preceding location factors, available and potential markets are usually the prime consideration in location decisions. The market area or trade area will be different for each firm. Eastern Loudoun and, in a larger context, the Washington, D.C. region, have many different markets. Some of the major markets include technical consulting services, light manufacturing, most professional services, electronic equipment, printing, paper products and precision instruments. In short, eastern Loudoun and the region have substantial current and potential markets for many kinds of industries, particularly professional and scientifically oriented ones. Each firm will, of course, perform its own market analysis before expanding or relocating. Such an analysis would have to be based upon the firm's particular products, methods and needs.

6. Taxes:

Loudoun County compares favorably with regard to real estate, machinery and capital taxes when compared with other jurisdictions in the Washington SMSA. This factor is somewhat like the effect of land costs in that it will come into play when a final choice between two locations in the same area must be made, but not when first choosing the general area. These costs may prove to be important assets to eastern Loudoun, because it will often be competing directly with neighboring jurisdictions for the same kind of industry.

7. Quality of Life:

More and more firms are seeking communities which offer a pleasant place to live. For corporate headquarters of administrative offices such as the Xerox Training Center, this can be a prime factor in location decisions. Fortunately, eastern Loudoun has a very high quality of life in terms of such things as higher air quality, lower traffic congestion and lower crime rate when compared with the more urban neighboring jurisdictions. This factor will likely increase in importance and become an even greater asset to eastern Loudoun.

When evaluated for Loudoun County, the preceding locational factors clearly point to the Eastern portion of the County as the most logical area for industrial growth. This does not mean that all such growth will or should occur in the eastern area. It simply means that this area offers the best potential for attracting needed industrial activity.

In order to determine which kinds of industries eastern Loudoun can expect to be able to attract, the major locational factors should be combined to show the overall picture of available resources. In order to be most suited for eastern Loudoun's resources, a firm would be one which requires an international airport, good highway transportation and access to major interstate routes, have no need for rail service, have a high pay scale and require highly trained professional employees. Industries which come close to matching these requirements are research and development firms, administrative offices, and educational facilities.

Other industrial activities which could fit comfortably into eastern Loudoun are "*manufacturers for local consumption*",<sup>13</sup> such as dairy products and bakeries, printing, concrete manufacturing, pharmaceutical supplies, plastics, metal fabrication and wholesales. These are some of the industries which eastern Loudoun might hope to attract. Fortunately, these are the kinds of industries which are generally desirable in terms of environmental and economic impact. However, they do tend to represent a somewhat narrow range of industries which could limit the range of employment options for local young people. Of course, locational decisions are made by the firms themselves and not by the County. Ultimately, the major locational factors will determine the final decision of a firm. Therefore, the County should work towards improving and broadening its industrial development resources, by implementing the recommendations set forth in this plan.

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Commonwealth of Virginia Governor's Office, Division of Industrial Development, Loudoun County Industrial Location Factors and Potential Economic Activity, July 1974.